



Clustering The Neighborhood Basing in the Market Type using K-Means

The Neighborhood Basing in the Market Type

- It's very important to know before to open a new trade how area this new trade will operate, who will the partners and the most important what place it will be the location.
- Studying the neighborhood.
- Get information about the security, the logistic to your future clients, and the others establishments around these coordinates.

Data sources

- Foursquare API.
- Name of the establishment, the establishment category, latitude and longitude.
- The only problem it was found in the API response was that neighborhood was replicated.

Feature selection

- Neighborhood.
- Neighborhood latitude.
- Neighborhood longitude.
- venue.
- venue latitude.
- venue longitude .
- venue category.

Exploratory Data Analysis

- 41 types of venue in the region.

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Divina Maria Café & Cultura	-22.233471	-45.93314	Café Portal	-22.232875	-45.934647	Café
1	Divina Maria Café & Cultura	-22.233471	-45.93314	Divina Maria Café & Cultura	-22.233471	-45.933140	Café
2	Divina Maria Café & Cultura	-22.233471	-45.93314	Maracujá com Manga	-22.233036	-45.935116	Wine Bar
3	Divina Maria Café & Cultura	-22.233471	-45.93314	Uyrapuru Restaurante e Cantina	-22.232098	-45.934943	Mineiro Restaurant
4	Divina Maria Café & Cultura	-22.233471	-45.93314	República Bar	-22.233757	-45.933293	Nightclub

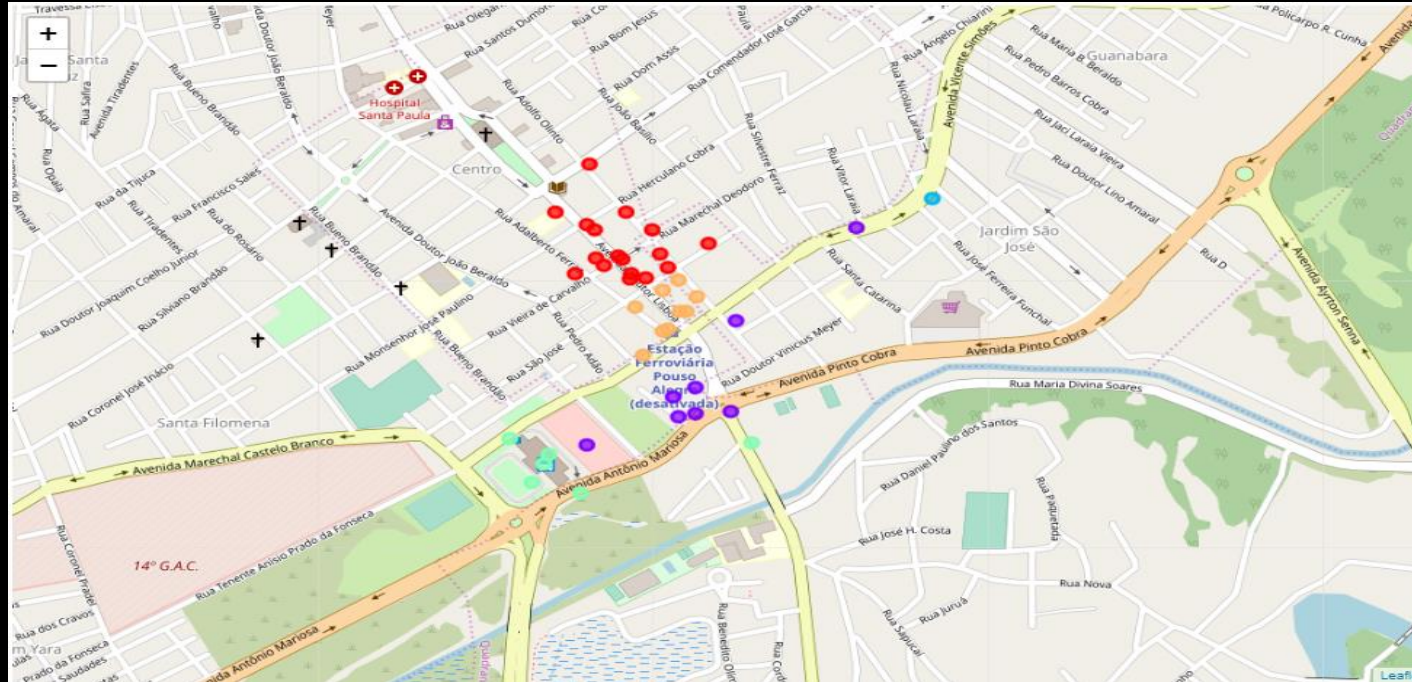
K-means Clustering

- Get what is the most common venue for each region.

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Freq	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue
0	4YOU Brasil	-22.231611	-45.929270	25	2	Brazilian Restaurant	Hotel	Gastropub	Pizza Place	Café	Japanese Restaurant	Fast Food Restaurant	Fish & Chips Shop
1	Academia Ana Maria	-22.234130	-45.933681	38	4	Brazilian Restaurant	Hotel	Gastropub	Fast Food Restaurant	Café	Chocolate Shop	Dessert Shop	Wine Bar
2	Arlen Hotel	-22.235197	-45.933162	40	1	Hotel	Brazilian Restaurant	Gastropub	Fast Food Restaurant	Restaurant	Café	Wine Bar	Convenience Store
3	Avenida Grill	-22.232199	-45.934812	47	0	Brazilian Restaurant	Fast Food Restaurant	Gastropub	Restaurant	Café	Chocolate Shop	Clothing Store	Dessert Shop
4	BUCK Alimentos E Serviços Terminal Rodoviário	-22.236475	-45.935552	36	3	Hotel	Brazilian Restaurant	Gastropub	Fast Food Restaurant	Restaurant	Café	Dessert Shop	Department Store

K-means Clustering

- Clustered map neighborhood of Pouso Alegre.



K-means Clustering

- Cluster 1

Cluster 1											
PA_merged.loc[PA_merged['Cluster Labels'] == 0, PA_merged.columns[[0] + list(range(5, PA_merged.shape[1]))]]											
	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
3	Avenida Grill	Brazilian Restaurant	Fast Food Restaurant	Gastropub	Restaurant	Café	Chocolate Shop	Clothing Store	Dessert Shop	Wine Bar	Event Space
7	Cacau Show	Brazilian Restaurant	Fast Food Restaurant	Dessert Shop	Clothing Store	Chocolate Shop	Restaurant	Café	Gastropub	Wine Bar	Cosmetics Shop

K-means Clustering

- Cluster 2

Cluster 2											
PA_merged.loc[PA_merged['Cluster Labels'] == 1, PA_merged.columns[[0] + list(range(5, PA_merged.shape[1]))]]											
	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
2	Arlen Hotel	Hotel	Brazilian Restaurant	Gastropub	Fast Food Restaurant	Restaurant	Café	Wine Bar	Convenience Store	Farmers Market	Dessert Shop
5	Bob's	Hotel	Brazilian Restaurant	Gastropub	Fast Food Restaurant	Restaurant	Café	Wine Bar	Convenience Store	Farmers Market	Dessert Shop
6	Bola De Ouro	Hotel	Brazilian Restaurant	Gastropub	Fast Food Restaurant	Restaurant	Café	Dessert Shop	Wine Bar	Convenience Store	Farmers Market

K-means Clustering

- Cluster 3

Cluster 3

PA_merged.loc[PA_merged['Cluster Labels'] == 2, PA_merged.columns[[0] + list(range(5, PA_merged.shape[1]))]]

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	4YOU Brasil	Brazilian Restaurant	Hotel	Gastropub	Pizza Place	Café	Japanese Restaurant	Fast Food Restaurant	Fish & Chips Shop	Coffee Shop	Grocery Store

K-means Clustering

- Cluster 3

Cluster 4											
PA_merged.loc[PA_merged['Cluster Labels'] == 3, PA_merged.columns[[0] + list(range(5, PA_merged.shape[1]))]]											
	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
4	BUCK Alimentos E Serviços Terminal Rodoviário	Hotel	Brazilian Restaurant	Gastropub	Fast Food Restaurant	Restaurant	Café	Dessert Shop	Department Store	Grocery Store	Farmers Market
12	Dique 2	Hotel	Brazilian Restaurant	Café	Fast Food Restaurant	Gastropub	Wine Bar	Bakery	Burger Joint	Bus Station	Comfort Food Restaurant
18	Grande Hotel Zé Maria	Hotel	Brazilian Restaurant	Gastropub	Restaurant	Café	Fast Food Restaurant	Dessert Shop	Grocery Store	Gourmet Shop	Farmers Market

K-means Clustering

- Cluster 5

Cluster 5											
PA_merged.loc[PA_merged['Cluster Labels'] == 4, PA_merged.columns[[0] + list(range(5, PA_merged.shape[1]))]]											
	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
1	Academia Ana Maria	Brazilian Restaurant	Hotel	Gastropub	Fast Food Restaurant	Café	Chocolate Shop	Dessert Shop	Wine Bar	Department Store	Gourmet Shop
10	Casa do Açaí	Brazilian Restaurant	Hotel	Gastropub	Fast Food Restaurant	Café	Chocolate Shop	Dessert Shop	Wine Bar	Department Store	Gourmet Shop

Conclusion

- The groups of markets are well done defined and must be aware of what market type it is necessary for that neighborhood.
- To look for the neighborhood and what kind of market is needed for that region.